



Getting Your Kids To Eat More V

Maybe you're one of those lucky parents whose kids already love vegetables.

If you're not, you're among legions of moms, dads, grandparents, and others who know that some of the youngsters in their lives should eat more of these good-for-you foods, but don't.

Help may be on the way.

And it's coming from a perhaps unlikely source: Your smart phone.

"We're creating a fun, science-based video game that gives parents of preschoolers a quick, easy way to learn some of the best approaches for getting their kids to eat more veggies," says Tom Baranowski, a psychologist at the Agricultural Research

Service's Children's Nutrition Research Center (CNRC) in Houston, Texas, and a professor of pediatrics at Baylor College of Medicine, also in Houston. The college operates the nutrition center in cooperation with ARS.

"Kiddio: Food Fight!"—the lively, upbeat video game that Baranowski's team is creating, will offer users a series of short, interactive episodes that they can play on their smart phone. The engaging, fast-paced game features "Kiddio," an appealing preschooler who doesn't like vegetables.

Each episode will give users several choices of what to do to improve the balky youngster's eating behaviors. Importantly, parents can customize the game so that Kiddio's temperament matches that of their child. "That way, what parents learn can help them reshape their own child's eating habits," says Baranowski. "We want the game to be relevant to the real-world food-choice issues of their household."

In the course of each episode, parents will be able to select—with a quick touch on the smart-phone screen—multiple options for influencing Kiddio. For example, after deciding whether to offer Kiddio a serving of broccoli, carrots, corn, or peas, players next select what to say to him to increase the chances that he will at least taste the veggie.

(D2538-1)



"Kiddio," an appealing character who doesn't like vegetables, is a tool that helps parents learn some of the best approaches for getting their kids to eat more veggies. Whether to take a bite, or say something like "Yuk!" are based on parental tactics. Images courtesy of ARCHIMAGE, Inc.

Some of these options, says Baranowski, "create effective, 'teachable moments,' such as when the parent says, 'That's a really tasty veggie.' Other options may express a perhaps-ineffective, 'firm discipline' approach in which the parent tells Kiddio, 'You will taste it before you leave the table!'"

"Each of the options is based on a parenting practice that we've studied in our research. And Kiddio's responses to these options—whether to take a bite or to say something like 'Yuk!'—are based on what we've learned so far about kids' reactions to these parental tactics."

By working their way through the various options, "parents can learn which tactics



Parents who want their kids to eat more fruits and vegetables may involve the youngsters in helping to select items from the supermarket produce section.



Vegetables

Scientists Scrutinize “Parenting Practices”

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...s, stars in a fun, science-based video game that helps preschool kids to eat more veggies. Kiddio's responses—ed on what researchers have learned about kids' reactions

succeed,” says Baranowski. “The point is to give them a safe, low-risk, nonthreatening way to sharpen their parenting skills and to boost their confidence in their decisions.

“We plan to make the episodes increasingly difficult, so players won’t become bored or complacent. We hope parents will want to play each episode several times, and that they’ll learn something new every time.”

Baranowski says that by limiting each episode to just a few minutes, the team will “make it convenient for on-the-go parents to play and learn in spare moments, such as when they’re waiting for their kids at the dentist or at soccer practice.”

The video-game project, funded by ARS and a grant from the National Institute of Child Health and Human Development, will draw upon five studies that the Houston scientists have conducted over the past decade. These investigations, involving thousands of parents, kids, and nutrition-related professionals, are examples of “behavioral nutrition,” a comparatively new scientific discipline that has roots in both psychology and nutrition.

The field is “all about exploring—and explaining—the internal and external factors that influence our food choices,” says Baranowski. His work, and that of his Houston coinvestigators, has helped make the CNRC an international leader in behavioral-nutrition research geared to understanding—and helping solve—the most urgent nutrition-related problems of America’s children and adolescents.

How do veggies fit into this picture?

Increased vegetable consumption helps kids get the recommended amounts of several vitamins and minerals and is thought by some experts to help reduce the risk of chronic diseases such as diabetes, heart disease, and some cancers.

Peer-reviewed articles by Baranowski and colleagues about the use of video games to improve kids’ eating habits have been published in the

American Journal of Preventive Medicine and the *Journal of Diabetes Science and Technology*.

Survey Reveals Some Parenting Practices

Among the studies that are helping shape the new “Kiddio” series is an investigation that drew upon the real-life experiences of more than 700 Alabama and Texas parents and their preschool-aged children. “Kiddio” collaborator Teresia O’Connor, M.D., an assistant professor of pediatrics at the CNRC and at Baylor College of Medicine, led this study, analyzing—from a different perspective—data collected as part of an earlier, larger investigation headed by CNRC colleague Theresa Nicklas.

Unlike some previous studies, this one didn’t focus on just one category of



Proactive actions, such as creating a home environment where kids are likely to see and be served fruits and vegetables and to see a parent enjoying eating fruits and vegetables, are believed to be more effective ways to get children to eat these healthful foods.

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parenting practices. Instead, O'Connor's team looked at an array of categories and at combinations of specific tactics from within each category.

"Parents don't do just one thing when trying to influence their child's eating behaviors," says O'Connor. "Rather, they do a combination of things. So, we attempted to investigate this by looking at data pertaining to five different types of behaviors that parents in our study reported using when trying to get a child to eat a veggie or a fruit.

"These categories were: 'teachable moments,' such as telling your son or daughter to try a couple of bites of a vegetable or a fruit, but that he or she doesn't have to eat all of it; 'practical methods,' such as adding something to make a veggie or fruit taste better to the child; 'firm discipline,' like preventing your child from having sweets if he or she doesn't eat the veggie or fruit; 'restriction of junk foods,' such as not keeping any junk foods in the house; and 'enhanced availability and accessibility,' such as keeping a container of ready-to-eat carrots on a lower shelf of your fridge that your preschooler can easily reach.

"We then grouped parents into three clusters according to their use of tactics that are within these general categories of practices," O'Connor says. "On average, no matter what group their parents were in, kids ate less than the recommended number of daily servings of veggies and fruits. But children of the parents who used less of the reactive 'firm discipline' tactics and showed a preference for the proactive 'teachable moments' and 'enhanced availability and accessibility' approaches ate slightly more veggies and fruits than children whose parents were in the other two groups. The finding was statistically significant."

Using combinations of proactive practices "appears to be more effective than using combinations of other parenting tactics," she says. "So, we now want to determine which specific combinations give the best results."

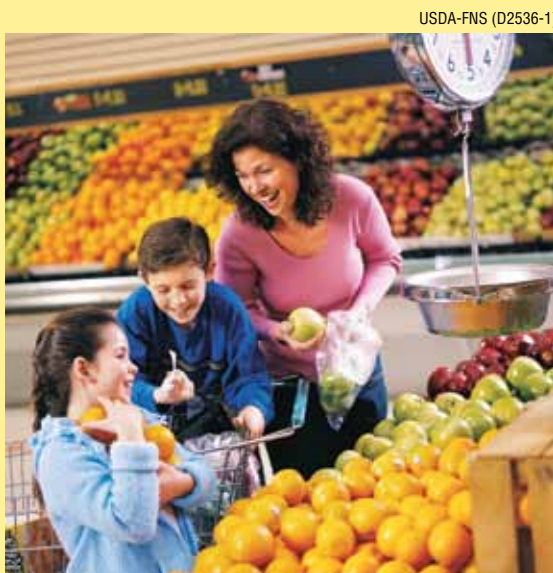
This study was "one of the first to look at how parents use combinations of parenting practices and how these combinations

are related to children's vegetable and fruit intake," O'Connor notes. She plans to use this research as the starting point for a longer study. "We looked at one time period—essentially, 3 days in the lives of our volunteers. Now we want to look at how parenting practices influence children's intake of vegetables and fruits over a longer period of time, such as 1 or 2 years."

The findings were documented in a 2009 issue of *Public Health Nutrition*, a peer-reviewed journal.

Lessons From Home and Abroad: Pros Share Their Insights

Other parent-and-kid-focused research led by O'Connor has yielded a globe-spanning glimpse of parenting practices pertaining to fruits and veggies. Her Hous-



Many U.S. kids eat more servings of fruits than vegetables, but most eat less of each than they should.

ton team, and several university researchers based in the United States and abroad, designed, conducted, and analyzed results of an Internet survey that tapped the expertise of nearly 900 doctors, nurse practitioners, registered dietitians, and other healthcare specialists, mostly in Australia, Chile, Mexico, Spain, and the United States.

Survey participants were asked to rate the long-term effectiveness of nearly 40 different parenting practices. "The people who took part in this survey have firsthand experience counseling parents about their preschoolers' eating habits," says O'Connor.

"In general, those surveyed agreed that it's more helpful for parents to be proactive than reactive in getting children to eat fruits and vegetables. Proactive actions, such as creating a home environment in which kids are likely to see and be served fruits and vegetables, to see their parent enjoying eating fruits and vegetables, and to have the chance to help a parent select and prepare fruits or veggies, were believed to be more effective techniques, in the long term, for getting children to eat these foods."

On the other hand, being reactive by pressuring, scolding, or punishing the child who's not eating fruit or vegetables was believed to be ineffective—or even counterproductive—in the long run."

According to O'Connor, these consensus opinions "can be useful for parents who are trying to find new ways to encourage their child to eat more fruits and vegetables, and also for public health and healthcare specialists who are developing strategies to promote increased fruit and vegetable intake among young children.

"At Houston, we're using what we learned from this study, and others, to develop food-based strategies for doctors and other clinicians to use as a first-line treatment of obesity among their younger patients."

O'Connor and colleagues reported their findings in a peer-reviewed article published in 2010 in the *Journal of the American Dietetic Association*.

"Today, most kids in this country eat less than the recommended amounts of veggies and fruits," O'Connor says. "We hope that findings from our studies will help change this for the better."—By **Marcia Wood**, ARS.

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